BRIEF DESCRIPTION OF THE DRAWING

Please replace the title of this section with BRIEF DESCRIPTION OF THE DRAWINGS

on Page 2, Line 19-20

Please replace paragraph 0008 with the following three paragraphs:

The invention is described in greater detail with reference to the two accompanying line drawings, which illustrate two preferred embodiments of the invention.

Figure 1 is a perspective line drawing of the invention with a driven well pump tube.

Figure 2 is a line drawing of the invention showing a driven piston, confining cylinder, and check valves that replace the well pump tube to allow creation of a partial vacuum and compression and pumping of any flowable material.

~~AMENDED APPLICATION NO. 10/622,620~~

BRIEF DESCRIPTION OF THE INVENTION
starting on Page 2, Line 23

Please replace paragraph 0009 with the following paragraph:

As shown in Figure 1, The components of the first preferred embodiment of the invention include at least one elliptical plate means (1) mounted on a rotating shaft means (2), which shaft means (2) runs through the center of gravity of the elliptical plate means (1) and whose axis is at an angle other than 90 degrees from the plane of the elliptical plate means (1), and which shaft means (2) is keyed or otherwise attached to the elliptical plate means (1) such that rotational movement of the shaft means (2) about its axis is transferred to the elliptical plate means(1); mechanical support and bearing means (3) mechanically attached to the base plate means (9) to provide rotational support to the shaft means (2) and attached elliptical plate means (1); at least one elliptical plate follower means (4) affixed with rollers or bearing means (5) positioned on the top and bottom surfaces of the elliptical plate means (1) at a fixed distance from the axis of the shaft means (2); said follower means (4) constrained by rollers (6) and roller races (7) or bearing means to allow bidirectional linear movement of the follower means (4) only in a direction parallel to the shaft means (2) axis; support brackets means (8) for the roller races means (7) mechanically affixed to the roller races means (7) and base plate means (9). As the shaft means (2) rotates either clockwise or counterclockwise, the top and bottom surfaces of the elliptical plate means (1) bear on the follower rollers means (5) and cause the attached follower means (4) to move in an alternating bidirectional lineal manner. The follower means (4) travel distance parallel to the shaft means (2) axis is determined by the distance of the follower rollers means (5) from the axis of the rotating shaft means (2) and the angle between the plane of the elliptical plate means (1) and the axis the shaft means (2). The bidirectional linear motion of the follower means (4) is transferred to at least one well pump tube means (10) with a bottom check valve means (11) installed inside a well (12) by affixing the follower means (4) to the pump tube means (10) by at least one mechanical attachment means (13). With the shaft means (2) axis aligned vertically, for every horizontal revolution of the shaft means (2) and elliptical plate means (1), the follower means (4) and affixed pump tube means (10) move one follower means (4) travel distance down (down stroke) and one follower means (4) travel distance up (up stroke). On the down stroke, the pump tube means (10) is forced down one follower means (4) travel distance with a velocity that opens the bottom check valve means (11) which allows water to enter the pump tube means (10) and displace water already in the pump tube means (10). On the up stoke, the pump tube means (10) is forced up with a velocity that closes the bottom check valve means (10) which allows water to be retained in the pump tube means (10) and be lifted up one follower means (4) travel distance. In this manner water is incrementally added to the pump tube means (10) above the water level in the well (12). Once the pump tube means (10) is full of water, additional water added to the pump tube means (10) by alternating up and down strokes is discharged from the top of the pump tube means (10) and from the well (12). At high rotational velocity of the shaft means (2) and elliptical plate means (1), the follower means (4) and pump tube means (10) move up and down with high velocity. On the up stroke, this high velocity imparts upward momentum to the water column in the pump tube means (10). The imparted momentum is harvested to move water out of the pump tube means (10) by the very rapid reversal of the direction of the pump tube means (10) on the high velocity down stroke.

starting on Page 3, Line 25

Please replace paragraph 0010 with the following five paragraphs:

For a constant angular rotation of the shaft means (2) and elliptical plate means (1) the velocity of the up and down motion of the follower means (4) and affixed pump tube means (10) is sinusoidal and the pumping rate of the invention is constant and independent of the depth to groundwater.

As shown in Figure 2, the well pump tube (10) of the first preferred embodiment of the invention is replaced by additional components 14 through 20 to comprise the second preferred embodiment of the invention. The bidirectional linear motion of the elliptical plate follower means (4) is transferred to at least one pipe means (14) closely fitted inside a confining cylinder means (15) by means of an attached annular seal means (16). A lower check valve means (17) that is normally closed and that opens upward under pressure is mechanically attached to the confining cylinder means (15) below the lower travel distance of the pipe means (14) and attached annular seal means (16). An inlet screen means (19) that is to be completely submerged in water (pond, stream, or holding tank) is attached to the bottom of the lower check valve means (17).

The top of the confining cylinder means (15) is mechanically attached to the base plate means (9). An upper check valve means (18) that is normally closed and that opens upward under pressure is mechanically attached to the pipe means (14) above the mechanical attachment means (13) that affix the pipe means (14) to the elliptical plate follower means (4).

For every horizontal revolution of the shaft means (2) and elliptical plate means (1), the follower means (4) and affixed pipe means (14) move one follower means (4) travel distance up (up stroke) and one follower means (4) travel distance down (down stroke). On the up stroke, the upward movement of the pipe means (14) and the attached annular seal means (16) creates a partial vacuum inside the confining cylinder means (15). This partial vacuum causes the lower check valve means (17) to open and draw water into the confining cylinder means (15) through the submerged inlet screen means (19). On the down stroke, the downward movement of the pipe means (14) and the attached annular seal means (16) compresses the water inside the confining cylinder means (15). This compression causes the lower check valve means (17) to close. Upon closing of the lower check valve means (17), further downward travel of the pipe means (14) and of the attached annular seal means (16) displaces the confined water upward into the pipe means (14). This upward displacement of water in the pipe means (14) forces the upper check value means (18) open to admit water in the pump tube means (20). On successive cycles the upper check valve means (18) closes on the down stroke due to the imposed head of water in the pump tube means (20). Because the pump tube means (20) can extend to any desired elevation above the level of the standing water, water can be pumped to any desired elevation consistent with sufficient strength of materials and power supplied to the shaft means (2).

For a constant angular rotation of the shaft means (2) and elliptical plate means (1) the velocity of the up and down motion of the follower means (4) and affixed pipe means (14) is sinusoidal and the pumping rate of the invention is constant and independent of the elevation to which water is pumped.